Chapter 2 Geometry

2024 - Sept 25-Oct 11

Standards / Objectives for Week

Section 2.4: Algebraic Reasoning

Common Core State Standards: preparing for G.CO.C.9, preparing for G.CO.C.10, preparing for G.CO.C.11, preparing for G.SRT.B.4
Learning Target: Use properties of equality to solve problems.
Success Criteria

- Identify algebraic properties of equality.
- Use algebraic properties of equality to solve equations.
- Use properties of equality to solve for geometric measures.

Section 2.5: Proving Statements about Segments and Angles

Common Core State Standards: G.CO.C.9
Learning Target: Prove statements about segments and angles.
Success Criteria

- Explain the structure of a two-column proof.
- Write a two-column proof.
- Identify properties of congruence.

Vocabulary: proof, two-column proof, theorem

Section 2.6: Proving Geometric Relationships

Common Core State Standards: G.CO.C.9
Learning Target: Prove geometric relationships.
Success Criteria

- Prove geometric relationships by writing flowchart proofs.
- Prove geometric relationships by writing paragraph proofs.

Vocabulary: flowchart proof (or flow proof), paragraph proof

Week Oct 7-11 2024 Overview

Monday

- **Use Reteaching 2.4 Handout for demonstrating the justification of solving algebraic equations by listing properties used.**
- **Complete SELF ASSESSMENT # 1-12 in Dynamic Classroom 2.4 in class**
- **Complete BPW pg 25 #1, 4,6,7**

Tuesday

- **Use Reteaching 2.5 Handout for proving statements on segments and angles**
- **Complete SELF ASSESSMENT # 1-5 in Dynamic Classroom 2.5 in class**
- **Complete BPW pg 27 all**

Wednesday -some out for PSAT and will complete for homework

- Complete PRACTICE # 1-14 from section 2.4
- Complete PRACTICE # 1-6, 9, 12 from section 2.5

Thursday

- Review BPW, handouts, and online exercises.
- -Use Dynamic Classroom 2.6 Practice Section # 17-20 to complete together pg 29 BPW also.

Friday - Quiz on section 2.4 to 2.6

Know the properties

Reflexive, Symmetric, and Transitive Properties of Equality

	Real Numbers	Segment Lengths	Angle Measures
Reflexive Property	$a = a$	$AB = AB$	$m\angle A = m\angle A$
Symmetric Property	If $a = b$, then $b = a$.	If $AB = CD$, then $CD = AB$.	If $m\angle A = m\angle B$, then $m\angle B = m\angle A$.
Transitive Property	If $a = b$ and $b = c$, then $a = c$.	If $AB = CD$ and $CD = EF$, then $AB = EF$.	If $m\angle A = m\angle B$ and $m\angle B = m\angle C$, then $m\angle A = m\angle C$.

Key Idea

Algebraic Properties

Let a, b, and c be real numbers.

Addition Property of Equality If $a = b$, then $a + c = b + c$.

Subtraction Property of Equality If $a = b$, then $a - c = b - c$.

Multiplication Property of Equality If $a = b$, then $a \bullet c = b \bullet c$, $c \neq 0$.

Division Property of Equality If $a = b$, then $\frac{a}{c} = \frac{b}{c}$, $c \neq 0$.

Substitution Property of Equality If $a = b$, then a can be substituted for b (or b for a) in any equation or expression.

Distributive Property

Sum $a(b + c) = ab + ac$

Difference $a(b - c) = ab - ac$

Algebra proof

EXAMPLE Justifying Steps

Solve $4(x + 3) = 54 - 3x$. Justify each step.

SOLUTION

Equation	Explanation	Reason
$4(x + 3) = 54 - 3x$	Write the equation.	Given
$4x + 12 = 54 - 3x$	Multiply.	Distributive Property
$4x + 12 + 3x = 54 - 3x + 3x$	Add $3x$ to each side.	Addition Property of Equality
$7x + 12 = 54$	Combine like terms.	Simplify.
$7x + 12 - 12 = 54 - 12$	Subtract 12 from each side.	Subtraction Property of Equality
$7x = 42$	Combine constant terms.	Simplify.
$x = 6$	Divide each side by 7.	Division Property of Equality

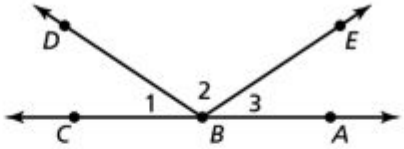
Example of a Geometry proof

EXAMPLE Writing a Two-Column Proof

Write a two-column proof.

Given $m\angle CBE = m\angle ABD$

Prove $m\angle 1 = m\angle 3$



STATEMENTS	REASONS
1. $m\angle CBE = m\angle ABD$	1. Given
2. $m\angle CBE = m\angle 1 + m\angle 2$, $m\angle ABD = m\angle 3 + m\angle 2$	2. Angle Addition Postulate
3. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	3. Substitution Property of Equality
4. $m\angle 1 + m\angle 2 - m\angle 2 = m\angle 3 + m\angle 2 - m\angle 2$	4. Subtraction Property of Equality
5. $m\angle 1 = m\angle 3$	5. Simplify